

What is claimed is the following:

- 1.- A stereoscopic projection system comprising a projection device with at least one filter which filters a parameter of the light in a color selective manner, the at least one filter having a spectral characteristic for transmitting light in a first wavelength band or set of wavelength bands and for reflecting or absorbing light in a second wavelength band or set of wavelength bands, wherein the projection device comprises a means for fast synchronized switching between light in different wavelength bands or sets of wavelength bands.
- 2.- A stereoscopic projection system according to claim 1, comprising a projection device with at least a first filter which filters a parameter of the light in a color selective manner with a first spectral characteristic and a second filter which filters a parameter of the light in a color selective manner with a second spectral characteristic, wherein the projection device comprises a means for fast synchronized switching between the at least first and second filters.
- 3.- A stereoscopic projection system according to any of the previous claims, the projection device projecting images for a left eye and images for a right eye, the stereoscopic projection system furthermore comprising a passive obscuration device for discriminating between the images for the left eye and the images for the right eye.
- 4.- A stereoscopic projection system according to any of claims 2 or 3, wherein the means for fast synchronized switching comprises a rotating wheel with at least one set of the first and second filters.
- 5.- A stereoscopic projection system according to any of claims 2 or 3, wherein the means for fast synchronized switching comprises a sliding filter with at least one set of the first and second filters.
- 6.- A stereoscopic projection system according to any of claims 2 or 3, wherein the means for fast synchronized switching comprises a solid state filter that can switch from a first characteristic to a second characteristic with a switching time below 5 ms.
- 7.- A stereoscopic projection system according to any of claims 2 or 3, wherein the means for fast synchronized switching comprises a stack of switchable cholesteric filters.

8.- A stereoscopic projection system according to claim 1, wherein the at least one filter is a first filter for splitting light in a first light path and a second light path, the means for fast synchronized switching comprising a first shutter in the first light path and a second shutter in the second light path, the operation of the shutters being linked so that the first shutter closes when the second shutter opens and vice versa.

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9.- A stereoscopic projection system according to claim 8, furthermore comprising a further filter with a characteristic substantially similar to the spectral characteristic of the first filter, the further filter being for combining light from the first and second lightpaths onto a combined lightpath.

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10.-A stereoscopic projection system comprising at least one set of a first and a second stereo projection devices for projecting images onto a common display unit, wherein each of the first and second stereo projection devices are provided with a combination of a first and a second filter mechanism, the first filter mechanism being a filter which filters a parameter of the light in a color selective manner.

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11.-A stereoscopic projection system according to claim 10, wherein the filter which filters a parameter of the light in a color selective manner comprises a color selective filter.

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12.-A stereoscopic projection system according to claim 11, wherein the color selective filter is an absorption filter.

13.-A stereoscopic projection system according to claim 10, wherein the filter which filters a parameter of the light in a color selective manner comprises a color selective retarder.

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14.-A stereoscopic projection system according to any of claims 10 to 13, wherein the second filter mechanism comprises a polarization filter.

15.-A stereoscopic projection system according to claim 14, wherein the polarization filters of the first and the second stereo projection devices have a substantially orthogonal polarization state.

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16.-A stereoscopic projection system according to claim 15, wherein the polarization filter is of a type which transmits a first type of linear polarization and reflects a second type of linear polarization.

- 17.- A stereoscopic projection system according to claim 15, wherein the polarization filter is of a type which transmits a first handedness of circular polarization and reflects a second handedness of circular polarization.
- 18.- A stereoscopic projection system according to any of claims 10 to 13, wherein the
5 second filter mechanism comprises a shutter mechanism.
- 19.- A stereoscopic projection system according to any of claims 10 to 18, wherein the filters which filter a parameter of the light in a color selective manner of the first and the second passive stereo projection device have overlapping regions in their spectral characteristic.
- 10 20.- A stereoscopic projection system according to any of claims 10 to 19, furthermore comprising passive obscuration devices.
- 21.- A stereoscopic projection system according to claim 20, wherein the passive obscuration devices comprise a pair of glasses with a first glass with a first filter mechanism with the same characteristics as the first filter mechanism of the first
15 projection device and with a second filter mechanism with substantially the same characteristics as the second filter mechanism of the first projection device, and a second glass with a first filter mechanism with the same characteristics as the first filter mechanism of the second projection device and with a second filter mechanism with substantially the same characteristics as the second filter
20 mechanism of the second projection device.
- 22.- A stereoscopic projection system according to any of claims 10 to 19, the first projection device projecting images for the left eye and the second projection device projecting images for a right eye, the projection system furthermore comprising an active obscuration device for discriminating between the images
25 for the left eye and the images for the right eye.
- 23.- A stereoscopic projection system according to claim 22, wherein the first projection device alternately projects a first set of images for the left eyes of a first group of observers and a second set of images for the left eyes of a second group of observers, and wherein the second projection device alternately projects
30 a first set of images for the right eyes of the first group of observers and a second set of images for the right eyes of the second group of observers, the active obscuration devices comprising a shutter which is open when the first set of images is displayed and closed when the second set of images is displayed.

24.- A stereoscopic projection system according to any of the previous claims, furthermore comprising means for electronically compensating for color differences between a plurality of signals originating from the projection device or projection devices.

5 25.- A stereoscopic projection system according to claim 24 in as far as dependent on any of claims 1 to 9, wherein the means for electronically compensating for color differences between a plurality of signals originating from the projection device comprises means for switching on a left image – right image basis.

10 26.- A stereoscopic projection system according to any of the previous claims, furthermore comprising means for reducing cross-talk in the most photopically contributing color channel of the projection device.

15 27.- A stereoscopic projection system according to claim 26, wherein the means for reducing cross-talk comprises a filter which filters a parameter of the light in a color selective manner in the most photopically contributing channel of the projection device.

20 28.- A stereoscopic projection system according to claim 26, wherein the means for reducing cross-talk comprises a first filter which filters a parameter of the light in a color selective manner in the most photopically contributing color channel of the first projection device, and a second filter which filters a parameter of the light in a color selective manner in the most photopically contributing color channel of the second projection device, the first and the second filters showing no overlap in the most photopically contributing color channel.

25 29.- A stereoscopic projection system according to claim 28, wherein the first and second filters which filter a parameter of the light in a color selective manner each are a notch filter or a plurality of notch filters.

30 30.- A stereoscopic projection system according to any of the previous claims, wherein a projection device is equipped with a light source with a substantially flat spectral distribution.

30 31.- A stereoscopic projection system according to claim 30, wherein the projection device is furthermore equipped with a set of filters such that the combination of light source and set of filters of the projection device is such that the light which is projected by the at least two projection devices onto the common screen can be discriminated by means of an adjusted obscuration device.

32.- A stereoscopic projection system according to claim 31, wherein the light source and the set of filters of each of the at least two projection devices are such that a multiplication of the spectral distributions of the light projected by the at least two projection devices onto the common screen is substantially close to zero.

5 33.- A stereoscopic projection system according to any of claims 31 or 32, wherein the set of filters are stereo filters.

34.- A stereoscopic projection system according to claim 33, wherein the set of filters are color filters.

10 35.- A stereoscopic projection system according to any of claims 31 to 34, wherein the adjusted obscuration device is a pair of glasses.

36.- A stereoscopic projection system according to any of claims 30 to 35, furthermore comprising means for electronically compensating for color differences between light projected from each of the at least two projection devices.

15 37.- A stereoscopic projection system according to any of the previous claims, wherein the projection device is an LCD or an LCoS device.

38.-A stereoscopic projection system according to any of the previous claims, comprising a plurality of stereo projection devices for multiple image stereo applications.